

The **BA484D** is an intrinsically safe instrument that can display text and simple graphics in a hazardous area. Incorporating six push-buttons and two solid state outputs, the BA484D is a low cost operator interface ideal for simple machine and process control applications. Incorporating Modbus RTU, BEKA and Legacy protocol the instrument may be used for new installations or to upgrade existing intrinsically safe systems.

Data and power are supplied via a 2 wire serial data link from a BEKA BA201 galvanic isolator in the safe area. The BA201 has RS232 and RS485 ports and can power and communicate with one or two serial text displays, or three displays in a three wire system.

The **high contrast liquid crystal display** incorporates a green backlight that is powered by the serial data link enabling the display to be read in all lighting conditions from full sunlight to total darkness.

Four push-buttons which may be used for operator acknowledgments or controls are included below the display. If larger industrial switches are required, up to six external push-buttons may be connected to the text display. When the remote switches are activated, the front panel push-buttons are automatically disabled.

Two isolated switch outputs, which are controlled via the serial data link, comply with the requirements for simple apparatus and may be used to switch almost any certified intrinsically safe device such as a sounder, beacon or a valve.

Eleven selectable standard screen formats display one, two, three, four or eight variables, with units of measurement, tag descriptions and bargraphs on some screens. The use of a standard display screen format greatly simplifies system design.

The **BA484D** is a Modbus RTU slave that can display up to eight process variables together with units of measurement and tag descriptions. When used with one of the eleven standard screen formats, no programming is required apart from setting the BA484D communication parameters and writing each Modbus variable into the BA484D Modbus register address map. If a custom screen layout is required in a

Modbus system this can be constructed using the BEKA protocol.

BEKA protocol enables custom screen formats to be designed and stored in non-volatile memory using a wide selection of lines, boxes, bargraphs and fonts. Although screens can be manually designed, free BEKA ScreenWriter software which will run on a PC simplifies the process.

Legacy protocol enables the BA484D to replace an MTL643 to provide ATEX certification and a display backlight. No software or galvanic isolator changes are required.

IECEx, ATEX, UKEX, FM, & cFM intrinsic safety certification allows installation in most gas and dust hazardous areas. Both solid state outputs comply with the requirements for simple apparatus and may be used to switch almost any certified intrinsically safe device such as a sounder, beacon or a valve.

Scripts are a sequence of commands, downloaded to and stored in non-volatile memory by the BA484D text display, that can be executed by the instrument without intervention from the host. For example a routine may be written to monitor the instruments push-buttons and to change the displayed screen or variable depending upon which button has been operated.

Pattern matching is a powerful feature that allows the BA484D to capture and display data contained in a proprietary ASCII serial string, such as that from a weighing system or barcode reader primarily intended for printing.

The **enclosure** which is moulded in glass reinforced polyester (GRP), has stainless steel fittings, silicone gaskets and an armoured glass window. Its robust construction provides IP66 protection. A separate terminal compartment allows the BA484D to be installed and terminated without exposing the display electronics.

To **simplify system design** the instruction manual is supplemented by comprehensive Modbus and programming guides plus a free instrument simulator which will run on a PC. All are available from the BEKA sales office or may be downloaded from www.beka.co.uk

BA484D

Modbus RTU display

Serial Data display

Intrinsically safe for use in gas and dust hazardous areas

- ◆ Intrinsically safe
- ◆ High contrast display with backlight.
- ◆ Modbus RTU slave
- ◆ BEKA and Legacy protocols.
- ◆ 11 standard screen formats.
- ◆ Four operator push-buttons & two switch outputs.
- ◆ IP66 field mounting GRP enclosure.
- ◆ Free simulator and ScreenWriter software.
- ◆ 3 year guarantee

www.beka.co.uk/ba484d



CCOE
PESO

BEKA

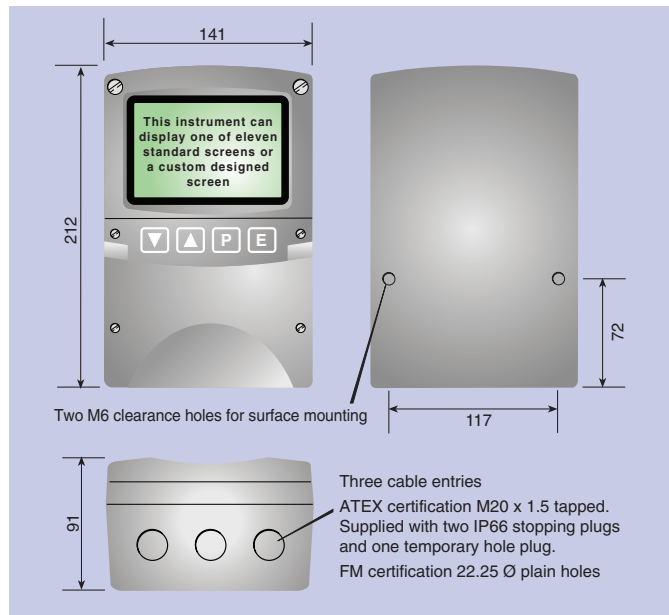
associates

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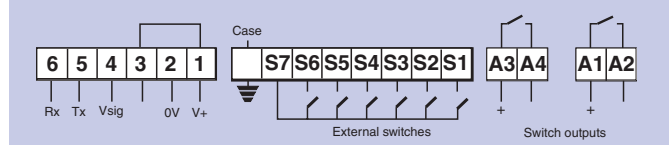
SPECIFICATION

Display	
Type	120 x 64 pixel liquid crystal.
Size	86.5mm x 45mm.
Backlight	Powered from serial link.
Screens	
Standard format	1, 2, 3, 4 or 8 variables plus bargraph can include: units of measurement and tag information
Custom format	See Programming Guide
Hidden screen	ASCII character set, 5 font sizes May be written to at any time and displayed when required.
Controls	
Front panel	Four push-buttons which can be software interrogated.
External switches	Control may be transferred to six external switches, front panel buttons are inhibited.
Switch cable length	5m max
Outputs	
Contacts	Two software controlled switch outputs. Isolated single pole solid state switch certified as <i>simple apparatus</i> .
Intrinsic safety parameters	R _{on} less than 5Ω + 0.7V R _{off} greater than 1MΩ U _i = 28Vdc I _i = 200mA P _i = 0.85W
Data transmission	
Baud rate	0.3, 0.6, 1.2, 2.4, 4.8, 9.6 or 19.2k bps.*
Cable length between isolator(s) & BA484D.	100m max at Baud rate of 9.6k bps* *Depends upon configuration & type of cable - see instruction manual.
Format	1 or 2 stop bits; odd, even or no parity bit; 7 or 8 data bits.
Protocol	Selectable Modbus RTU, BEKA or Legacy that is compatible with the MTL643 & MTL644
Address	
Modbus protocol	1 - 247
BEKA protocol	0 - 247
Legacy protocol	0 - 15
	Zero reserved for single instrument applications
Intrinsic safety	
International IECEx	
Code	Ex ia IIC T5 Ga (T _{amb} = -40 to 60°C) or Ex ia IIIC T80°C Db (T _{amb} = -40 to 60°C) IP66] <i>Dust option, see How to order</i>
Cert. No.	IECEx ITS 07.0020
Europe ATEX and UKEX	
Code	Group II Category 1G Ex ia IIC T5 Ga (T _{amb} = -40 to 60°C) or Group II Category 2D Ex ia IIIC T80°C Db (T _{amb} = -40 to 60°C) IP66] <i>Dust option, see How to order</i>
Cert. No.s	ITS02ATEX2035 & ITS21UKEX0078
Location	Gas Zone 0, 1 or 2: Dust Zone 21 or 22
Interface	BA201 (See datasheet)
USA FM	
Standard Code	3610 Entity CL I, II, III: Div 1: GP A, B, C, D, E, F & G T4 @ 60°C File 3025514
Standard Code	3611 Nonincendive CL I: Div 2: GP A, B, C & D, T4 @ 60°C CL II, III: Div 2: GP E F & G, T4 @ 60°C File 3025514
Canada cFM	
File No.	3032633C
India COE/PESO	As ATEX - see certificate
Environmental	
Operating temp	-20 to 60°C (ATEX gas certification -40 to 60°C)
Storage temp	-40 to 85°C
Humidity	To 95% @ 40°C
Enclosure	IP66
EMC	Complies with EU and UK Directives
Mechanical	
Terminals	Screw clamp for 0.5 to 1.5mm ² cable.
Weight	1.6kg
Accessories	
Stainless legend plate	Stainless steel plate etched with tagging or applicational information secured to the front of the instrument
Pipe mounting kit	BA392D or BA393

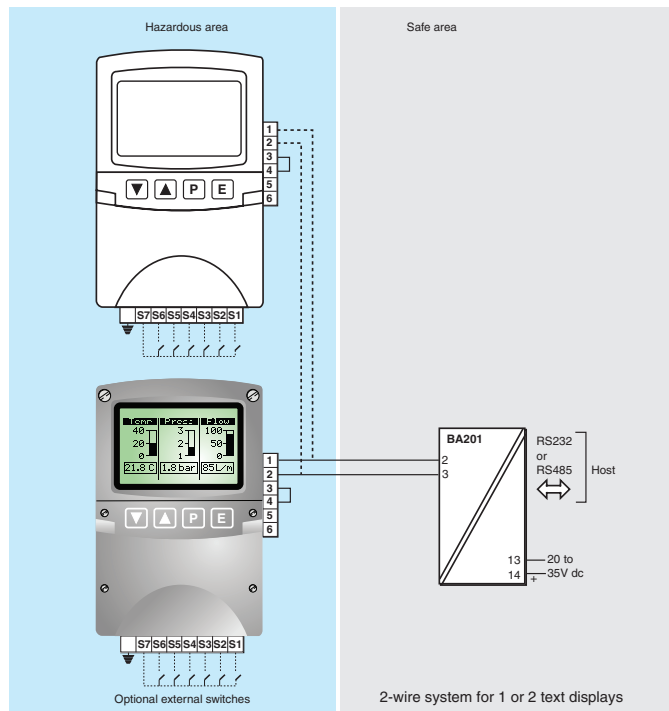
DIMENSIONS (mm)



TERMINAL CONNECTIONS



CONNECTION



Modbus Guide
Programming Guide
Instrument simulator] May be downloaded from www.beqa.co.uk

HOW TO ORDER

Model number	BA484D] <i>All versions have IECEx certification. Note: Cable entries differ for FM & ATEX versions</i>
Certification	ATEX & UKEX gas or ATEX & UKEX gas & dust or ATEX, UKEX, FM & cFM gas	
Accessories	Stainless legend plate Pipe mounting kit Modbus Guide Programming Guide Instrument simulator BEKA ScreenWriter	
	Please specify if required	
	Legend	
	BA392D or BA393	
	Serial Text Display - Modbus Guide	
	Serial Text Display - Programming Guide	
	Instrument simulator for personal computer	
	Custom screen design aid for personal computer	